

TYLENCHOCRICONEMA ALLENI, A PATHOGEN OF THE
BROMELIAD, TILLANDSIA FLABELLATA

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In 1974, an unusual nematode species was recovered from soil about the roots of a bromeliad shipped from Guatemala to California. This nematode was described as a new species and named Tylenchocriconema alleni Raski and Siddiqui (2). The genus and species of the bromeliad associated with the soil from which the type species was recovered was not determined. Nor was it known if T. alleni parasitized the roots or foliage of bromeliads or any other plant. The biology of this nematode remained unknown until 1984, when a nematologist in The Netherlands observed T. alleni parasitizing the leaves of Tillandsia flabellata Bak. (1). It is interesting to note that the bromeliad on which this nematode was found in The Netherlands had also been shipped from Guatemala. Recent research in The Netherlands indicates that this nematode has the potential to be very pathogenic to Tillandsia flabellata (1).

Key characteristics of Tylenchocriconema alleni: Females have an enlarged metacarpus which merges with the procarpus, and males have a degenerate esophagus. These are characteristics of the superfamily Criconematoidea. This nematode, however, shares other characteristics with the superfamily Tylenchoidea, such as long caudal alae in males, elongate isthmus in females, and fine body annulation in males and females (Fig. 1). Because T. alleni shares characteristics with both superfamilies, Raski and Siddiqui gave it the generic name Tylenchocriconema and placed it in a new family and superfamily, Tylenchocriconematidae and Tylenchocriconematoidea, respectively.

Parasitic behavior: Nematodes do not penetrate the leaf, but feed by only piercing the leaf cells with their stylets (Fig. 2). The largest number of Tylenchocriconema alleni are found in the crown of the plant, just below the waterline. As many as 35,000 nematodes have been recovered from an infected plant (1).

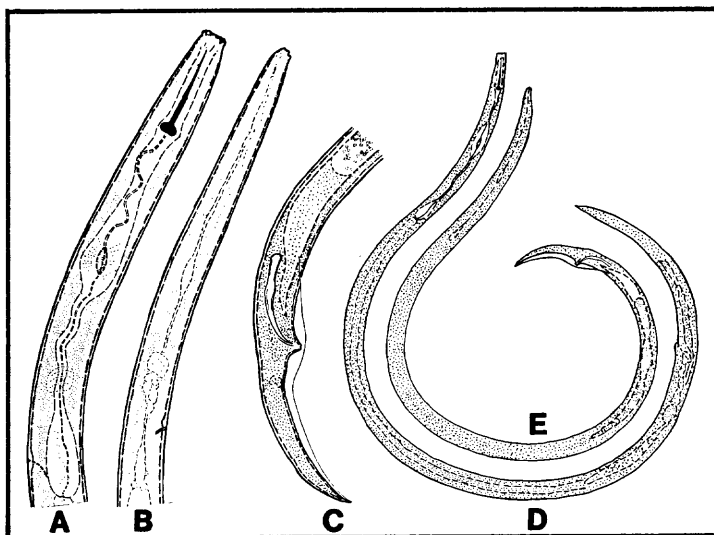


Fig. 1. Tylenchocriconema alleni. A. female, anterior end. B. Male anterior end. C. male tail. D. Female, full length. E. Male, full length (after Raski and Siddiqui)



Fig. 2. Tylenchocriconema alleni feeding on Tillandsia flabellata leaf. (Photo courtesy of H. Brinkman)

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Symptoms: Healthy plants begin to show light brown spots on the top leaf surface six weeks after inoculation with this nematode. Later these spots become discrete, dark brown lesions (Fig. 3). As the infection progresses, flowering is inhibited, and severely infected leaves die. Severely infected plants may die.

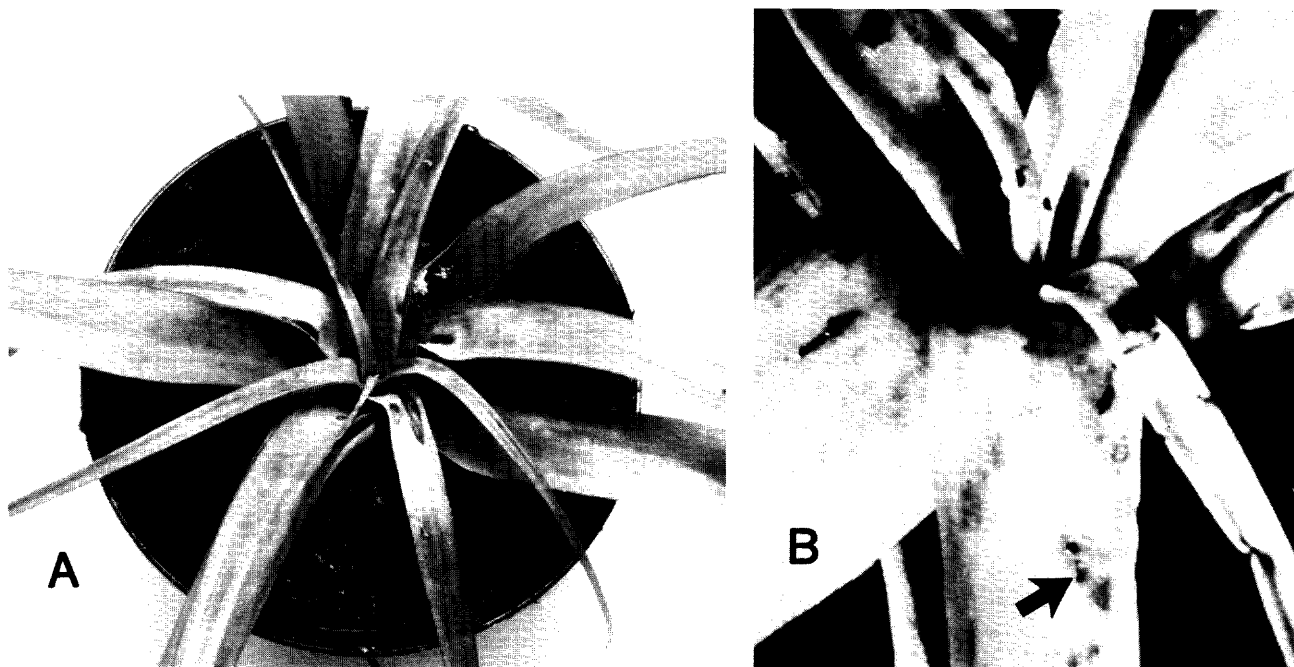


Fig. 3. Lesions on leaves of *Tillandsia flabellata* caused by *Tylenchocriconema alleni*. A. General aspects of a plant showing several lesions in the crown. B. Close-up of early symptoms of lesion development (arrow). (Photos courtesy of H. Brinkman)

Control: When the leaves die, clusters of nematodes and eggs remain on the dried leaves. These clusters appear to the naked eye as a wool-like mass. It is possible that nematodes may be dispersed on dead leaf material (1). Dead leaves of infected plants should be discarded.

Preliminary research indicates that this nematode may be controlled with oxymyl (1). Concentrations of 0.005% a.i. apparently gave complete control, and a higher concentration of 0.025% a.i. was not phytotoxic (personal communication Dr. P. W. Maas, Wageningen, The Netherlands).

Survey and Detection: Bromeliads originating from Central America should be inspected very carefully for this nematode, although the possibility of its originating from European countries or from other parts of the United States should not be precluded. The author is interested in surveying *Tillandsia flabellata* and other bromeliads in Florida for *Tylenchocriconema alleni*. Submit bromeliads with leaf lesions to the Division of Plant Industry Nematology Bureau, and indicate that the purpose of the submission is for the *T. alleni* survey.

LITERATURE CITED:

1. Brinkman, H. 1985. *Tylenchocriconema alleni* een bijzonder aaltje in de bladkoker *Tillandsia flabellata*, p. 79-80. In *Jaarboek 1984, Plantenziektenkundige Dienst, Wageningen, The Netherlands*.
2. Raski, D. J., and I. A. Siddiqui. 1975. *Tylenchocriconema alleni* n.g. n.sp. from Guatemala (Tylenchocriconematidae n. fam.: Tylenchocriconematoidea n. superfam.; Nematoda. J. Nematol. 7:247-251.

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